

REMARKS

The Examiner is thanked for carefully reviewing the present application. The present amendment is in response to the Office Action mailed on January 30, 2006 regarding claims 1-9, 41, 43-45 and 47-51. The applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action and render all claims at issue patentably distinguishable over cited references.

Favorable reconsideration is requested in view of the following remarks.

Claims 41, 43-46 and 47-51 are canceled without prejudice, and therefore claims 1-9 are now pending in the application. These amendments contain no new matter nor raise new issues.

Claim Rejections under 35 U.S.C. §103(a)

1. Claims 1-9 are rejected under 35 U.S.C.103(a) as being unpatentable over Ito et al. (US 6,583,442) (hereinafter referred to as "Ito et al.") in combination with Shima et al. (US 4,532,631) (hereinafter referred to as "Shima et al.") and Sugimoto et al. (JP 04061184) (hereinafter referred to as "Sugimoto et al."). These rejections are respectfully traversed. As will be fully explained below, it is respectfully submitted that Ito et al. in combination with Shima et al. and Sugimoto et al. do not render the claimed invention obvious, and the applicants respectfully request that the section 103(a) rejection be withdrawn.

(1) With respect to claim 1, the applicants recite a light emitting diode (LED), comprising: a semiconductor layer of a first polarity; an active layer, located on the semiconductor layer of the first polarity; and a semiconductor layer of a second polarity, located on the active layer, wherein at least one side of a stacked structure at least composed of the active layer and the semiconductor layer of the second polarity has a wave-shape border in a top view of the LED, thereby reducing the probability of reflecting the light emitted from the active layer, thus making light emitted from

the active layer penetrate through the at least one side and be emitted outside the LED, wherein the wave-shape border is formed from an etched surface, and the etched surface is formed by employing one single mask.

Ito et al. disclose a light emitter device, comprising a semiconductor layer 102 of a first polarity; an active layer 103, located on the semiconductor layer of the first polarity; and a semiconductor layer 104 of a second polarity, located on the active layer. Exactly as Examiner said, Ito et al. fail to teach structural features recited in claim 1 of the present application, that at least one side of a stacked structure is at least composed of the active layer, and the semiconductor layer of the second polarity has a wave-shape border in a top view of the LED.

In Shima et al., the active layer 6 is a buried active layer and is surrounded with clad layers, such as described in col. 1, lines 39-40 and 51-53 and shown in FIG. 1 disclosed by Shima et al.. Further, the stacked structure described by Shima et al. is either at least composed of the active layer 6 and the P-type clad layer 7 or at least composed of the active layer 6 and the N-type clad layer 5. The stacked structure is covered by the P-type cap layer 8 and the electrode 9 or is covered by the N-type compound semiconductor single crystalline substrate 1 and the electrode 10. Accordingly, the stacked structure is covered, so in the top view of the laser, anyone cannot be aware of that the stacked structure at least composed of the active layer 6 and the P-type clad layer 7 or the active layer 6 and the N-type clad layer 5 has a wave shape border. Obviously, Shima et al. only disclose a laser in which a side of the active layer 6 has a wave shape border in a top view of the active layer 6.

On the contrary, in the LED recited in claim 1, the stacked structure is at least composed of the semiconductor layer of a second polarity and the underlying active layer, and the wave-shape border of the at least one side of the stacked structure is formed from an etched surface. In order to form the etched surface of the stacked structure at least composed of the semiconductor layer of a second polarity and the underlying active layer, the etching step is performed from the top of the LED to the bottom of the active layer. Accordingly, it is clear that anyone can see that the stacked structure has the wave-shape border from the top of the LED (see FIGs. 2A, 2B, 3A and 4 in the

present application).

According to the aforementioned description, neither Ito et al. nor Shima et al. teach the technique features recited in the claim 1 of the present application, which include at least one side of a stacked structure at least composed of the active layer and the semiconductor layer of the second polarity having a wave-shape border in a top view of the LED; and the wave-shape border being formed from an etched surface.

Therefore, the combination of Ito et al. and Shima et al. does not teach the structural features recited in the claim 1 of the present application, as the features recited in claim 1 are not disclosed by either reference. Sugimoto et al. is not cited against claim 1. Because no reference of record, alone or in combination, discloses, teaches or suggests the limitations recited in claim 1, claim 1 is allowable and the rejection of claim 1 under 35 U.S.C. 103(a) should be withdrawn.

(2) With regard to claims 2-9, since the independent claim 1 is allowable, dependent claims 2-9 each of which depends from independent claim 1 are likewise believed to be allowable. Accordingly, the applicants respectfully request that the section 103(a) rejections be withdrawn.

2. Claims 41, 43-45, 47-49 and 50-51 are rejected under 35 U.S.C.103(a) as being unpatentable over Ito et al. (US 6,583,442) (hereinafter referred to as “Ito et al.”) in combination with Shima et al. (US 4,532,631) (hereinafter referred to as “Shima et al.”) and Sugimoto et al. (JP 04061184) (hereinafter referred to as “Sugimoto et al.”).

The applicants have canceled claims 41, 43-45, 47-49 and 50-51 without prejudice, and the applicants respectfully request that the section 103(a) rejection be withdrawn.

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CONCLUSION

In light of the above remarks, Applicants respectfully submit that Claims 1-9 as currently presented are in condition for allowance and hereby requests reconsideration. Applicants respectfully request the Examiner to pass the case to issue at the earliest convenience.

Respectfully submitted,
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